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Positive psychological capital in health professionals: A systematic literature review

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Abstract | **Introduction:** Health organisations need to attract and retain health professionals as well as protect and improve their mental health following the premises of positive psychology, particularly with regard to positive psychological capital. **Objective:** This review aimed to map studies that addressed positive psychological capital in empirical research with samples of health professionals. **Method:** A systematic literature review of articles addressing positive psychological capital in samples of physicians and nurses was conducted. The search for primary studies was carried out in April 2023, in the databases: PubMed, CINAHL, MEDLINE, Nursing & Allied Health Collection, Scopus and Web of Science. **Results:** 20 articles were included in the review in which the main concepts with which positive psychological capital was related were analysed, according to their nature, positive or negative, observing the role that positive psychological capital assumed as a variable, the instruments used to measure this concept and the statistical analysis performed. **Conclusions:** Positive psychological capital was positively associated with work engagement, perceived organisational support, intention to stay, positive aspects of the work environment, innovative behaviours, and leader-member exchange. Furthermore, this concept was negatively related to work stressors, emotional exhaustion, and psychological distress. The main gap highlighted in the primary studies was the use of cross-sectional designs, which prevent the inference of causality. These results reinforce the need for an intervention with regards to physicians and nurses based on the development of positive psychological capital.

Keywords: Positive psychological capital, PsyCap, healthcare professionals, health organisations.

Capital psicológico positivo en profesionales de la salud: una revisión sistemática de la literatura

Resumen | **Introducción:** Las organizaciones de salud necesitan atraer y retener profesionales de la salud, proteger y mejorar su salud mental siguiendo las premisas de la psicología positiva, particularmente en lo que respecta al capital psicológico positivo. **Objetivo:** Esta revisión tuvo como objetivo mapear estudios que abordaron capital psicológico positivo en estudios empíricos con muestras de profesionales de la salud. **Método:** Se realizó una revisión sistemática de la literatura de artículos que abordan capital psicológico positivo en muestras de médicos y enfermeras. La búsqueda de estudios primarios se realizó en abril de 2023, en las bases de datos: PubMed, CINAHL, MEDLINE, Nursing & Allied Health Collection, Scopus y Web of Science. **Resultados:** Se incluyeron en la revisión 20 artículos en los que se analizaron los principales conceptos con los que se relacionaba el capital psicológico positivo, según su naturaleza, positiva o negativa, observando el papel que asumió capital psicológico positivo como variable, los instrumentos utilizados para medir este concepto y el

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análisis estadístico realizado. **Conclusiones:** El capital psicológico positivo se asoció de manera positiva con el compromiso laboral, el apoyo organizacional percibido, la intención de quedarse, los aspectos positivos del ambiente laboral, los comportamientos innovadores y el intercambio líder-miembro. Además, este concepto se relacionó de manera negativa con factores estresantes laborales, agotamiento emocional y malestar psicológico. La principal brecha destacada en los estudios primarios fue el uso de diseños transversales, que impiden la inferencia de causalidad. Estos resultados refuerzan la necesidad de una intervención en médicos y enfermeras basada en el desarrollo de capital psicológico positivo.

Palabras clave: Capital psicológico positivo, PsyCap, profesionales de la salud, organizaciones de salud.

Work environments with high workloads and adverse psychosocial conditions generate stress, anxiety, and exhaustion among healthcare professionals, harming health systems (Secosan et al., 2021). Liu et al. (2019) found that 24% of healthcare professionals face workplace violence (WPV) annually, negatively affecting care quality, as also identified by Al-Omari et al. (2019). During the COVID-19 pandemic, these professionals faced exacerbated working conditions, leading to mental health issues, including anxiety, stress, and the risk of post-traumatic stress disorder (PTSD) (Alves & Aguiar, 2022). Nogueira et al. (2021) of the Oswaldo Cruz Foundation (Fiocruz) observed that 95% of professionals saw significant changes in their lives due to the pandemic, with 50% reporting an excessive workload. The Agency for Investment and Foreign Trade of Portugal (AICEP; 2023) underscored that the pandemic introduced uncertainty, which negatively affected the resilience of the social, work, economic, and financial systems.

Health organisations are an important engine for social progress, which is why they need to constantly adapt, aligning themselves with new challenges in a global society (Dai & Akey-Torku, 2020). It is crucial to attract and retain qualified professionals, as the effectiveness of health services depends on committed, engaged, and satisfied professionals. The United Nations (2021) highlighted the need to identify and manage health risks at a global scale. Perniciotti et al. (2020) and Kour et al. (2019) highlight the need for measures to reduce occupational stress and improve worker performance, emphasising interventions to prevent emotional exhaustion and promote well-being as key to organisational effectiveness in health.

Occupational well-being is influenced by workers' daily emotions and personal satisfaction. Identifying factors that promote mental health is vital in organisational contexts (Liu et al., 2019). The response to adverse events depends on interactions with the environment, which can promote well-being or protect against possible threats (Liang et al., 2018). In 21st-century organisations, individual resources are regarded as essential for psychological well-being and enhanced work performance (Lupsa et al., 2020). Health professionals with high personal resources face work challenges and stressful situations better, demonstrating greater effectiveness at work (Secosan et al., 2021). In this context, PsyCap stands out as one of the essential positive individual resources for both personal and organisational success, according to Santos et al. (2019) and Luthans et al. (2004), due to its capacity for development over time.

Positive Psychological Capital (PsyCap) is defined as an individual psychological developmental state characterised by four dimensions: self-efficacy, hope, resilience, and optimism (Luthans et al., 2007). An individual with high PsyCap has sufficient confidence to exert the necessary effort to succeed in challenging tasks (self-efficacy), makes positive attributions about present and future events (optimism), persists towards defined goals and, when necessary, redirects efforts to achieve desirable outcomes (hope), and is capable of recovering from problems and adversities to ultimately achieve success (resilience) (Luthans et al., 2007; Luthans & Avolio, 2014; Rus & Băban, 2013).

There is a notable gap in the literature regarding empirical studies with conceptual models that substantiate the role of PsyCap in mitigating negative personal and organisational outcomes (Secosan et al., 2021). Understanding how PsyCap is perceived and valued, and how it influences, moderates, and mediates organisational factors, is critical for developing more effective interventions and policies that enhance both individual and organisational well-being.

In the healthcare sector, specifically, it is imperative to understand how PsyCap can alleviate the negative impacts of psychosocial risks faced by doctors and nurses. Such understanding is essential not only for promoting the occupational well-being of these professionals but also for achieving more favourable outcomes in the workplace. This systematic review is therefore justified by the need to compile and analyse existing evidence on the role of PsyCap. Moreover, it aims to contribute to the enhancement of current PsyCap intervention programmes and to the development of new programmes focused on prevention or promotion.

The objective of this systematic literature review was to survey studies that have investigated PsyCap in empirical research involving healthcare professionals, particularly doctors and nurses, and to assess the potential benefits of PsyCap identified in these studies. Additionally, this review sought to determine the most common roles that PsyCap plays as a variable, the instruments most frequently used to measure it, and the prevalent statistical analyses in the primary studies reviewed. The review period (2015-2023) was established based on a previous study (Pais et al., 2019), which conducted a bibliometric analysis of PsyCap literature from 2004-2014.

Literature review

The origin of PsyCap is linked to the revival of positive psychology proposed by Seligman and Csikszentmihalyi (2000) and Seligman (2002), which focused on the flourishing of individuals across various contexts (Luthans, 2002; Luthans & Youssef, 2004), expanding psychology's role beyond the study of weaknesses to emphasise human potential and well-being. Influenced by this perspective, Luthans (2002) applied this approach to the workplace, leading to the development of Positive Organisational Behaviour (POB) aimed at enhancing organisational effectiveness through the development of employees' psychological strengths. This approach requires meeting four criteria in order to align with POB study conditions: a solid theoretical foundation, measurability, a positive impact on the work context, and state-like characteristics, meaning they are capable of development. Based on these criteria, four dimensions were identified: hope, self-efficacy, resilience, and optimism (Luthans & Youssef, 2004; Luthans et al., 2005; Luthans et al., 2007; Tavares, 2012).

These dimensions constitute PsyCap, also known by the acronym HERO. Although the term was introduced in the field of psychology in 2002, it was not until 2004 that Luthans et al., the pioneering authors of the concept, began to formally establish its framework. The definition was further solidified in 2007, marking a significant development in its theoretical underpinnings (Luthans & Youssef, 2004; Luthans et al., 2005; Luthans et al., 2007; Santos, 2021; Tavares, 2012). In the healthcare sector, PsyCap is essential for protecting workers from adversities (Liang et al., 2018). Professionals with high levels of PsyCap are considered a competitive advantage for organisations due to their resilience, motivation, and ability to handle challenges (Avey et al., 2010; Cid et al., 2021; Luthans & Youssef, 2004; Luthans & Avolio, 2014). Additionally, these professionals tend to experience less stress and have lower turnover rates (Chang et al., 2023).

PsyCap is also positively correlated with leader-member exchange (LMX), acting as a mediator in the relationship between LMX and the occupational well-being of healthcare professionals. This correlation is particularly significant for those with lower emotional contagion (EC), suggesting that higher levels of EC may increase the risks to well-being when PsyCap levels are low (Xerri et al., 2022). Qiu et al. (2019) emphasise that PsyCap mediates the relationship between workplace violence (WPV) and professional identity, highlighting its role in maintaining resilience and the ability to face challenges.

Moreover, PsyCap is crucial for preserving empathy among medical residents during their training (Jin et al., 2020) and has a positive impact on the professional identity of doctors and nurses, helping to mitigate occupational stress (Hao et al., 2020; Mei et al., 2022). Valuing and promoting PsyCap is essential for maintaining the excellence of healthcare services, representing an effective strategy to improve the quality of care and organisational success.

Method

Research strategy, eligibility criteria, and information sources

For this systematic literature review, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines were followed (Page et al., 2023). For the collection of primary studies, the following inclusion criteria were defined: (1) studies published between 2015-2023; (2) studies published in peer-reviewed journals; (3) studies that contain the expression positive psychological capital or psychological capital, or PsyCap in the title or keywords and that have samples composed of physicians and/or nurses; (4) studies published in Portuguese, English, and Spanish; and (5) empirical studies. Exclusion criteria were: (1) samples from other professional occupations or students within the selected profession (e.g., medical and nursing students and interns); (2) studies that do not specify the composition of their sample; (3) studies that do not contain the established concepts; (4) literature review studies; and (5) studies published in journals without the peer-review process. Keywords were selected in different order, according to different databases.

In this literature review we used the following databases: PubMed (Medline), CINAHL Complete, MEDLINE Complete, Nursing & Allied Health Collection: Comprehensive, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Cochrane Methodology Register, Library, Information Science & Technology Abstracts, MedicLatina, Cochrane Clinical Answers, Scopus, and Web of Science. The following research expression was used to collect the primary studies: (((((“positive psychological capital”) OR (“psychological capital”)) OR (“psycap”)) AND ((doctors) OR (physicians) OR (healthcare professionals))) AND (“psycap”)) AND (nurs*), from April 12 to April 14, 2023. Additionally, on August 14, 2024, a new search was conducted in PubMed to validate previously identified studies. These keywords were chosen in alignment with the findings from the existing literature.

Selection process and data collection

The first selection was based on the title and abstract of the primary studies that appeared in the search results. In the second phase, articles that did not meet the inclusion criteria were excluded. In the third phase, the full text of the articles was read. Using Microsoft Excel, an information synthesis Table was created to collect the necessary information from primary studies. Two researchers participated in the selection process, after reading the title and abstract and in situations of doubt regarding the inclusion/exclusion, a third researcher was consulted.

Risk of study bias assessment

We evaluated the primary studies based on the Critical Evaluation Checklist of the Joanna Briggs Institute (JBI) of 2020 (Moola et al., 2020; Oliveira et al., 2022). The nine assessment items were used to assess the methodological aspects of each selected study. We extracted the fo-

llowing information from the study: objective, sample, research design, methodology, role of the core variable (i.e., PsyCap), related variables, core variable instrument, and main results).

Results

Selected studies

The search in PubMed was performed in two ways, first, not using filters, which resulted in 15 articles, in which 10 were included because they met the inclusion criteria; then with filters, which resulted in eleven articles, of which eight articles were included. The database search on CINAHL Plus resulted in 49 articles, of which no articles were included because they did not fit the inclusion criteria. The search in Scopus resulted in three articles, of which none was selected because they did not meet the inclusion criteria. The search on Web of Science resulted in seven articles, of which three were included in this review, the rest did not meet the inclusion criteria. During the new search in PubMed, two articles that met the previously established criteria and had not been detected earlier were identified. Therefore, these were included in this review. A total of 20 articles were included in this review (Figure 1).

Quality of the primary studies

Regarding the quality of the methodological aspects of the primary studies we identified that 75% of the studies presented a high quality and 25% presented a reasonable quality (Table 1).

Characteristics of the studies

In the 20 studies included in this review, we configured that the study with the smallest sample had 126 health professionals (32 nurses and 94 physicians) (Secosan et al., 2021) and that the largest sample had 1,496 nurses (Ding et al., 2015). On average, the samples of the primary studies had approximately 682 participants (M = 682,30;

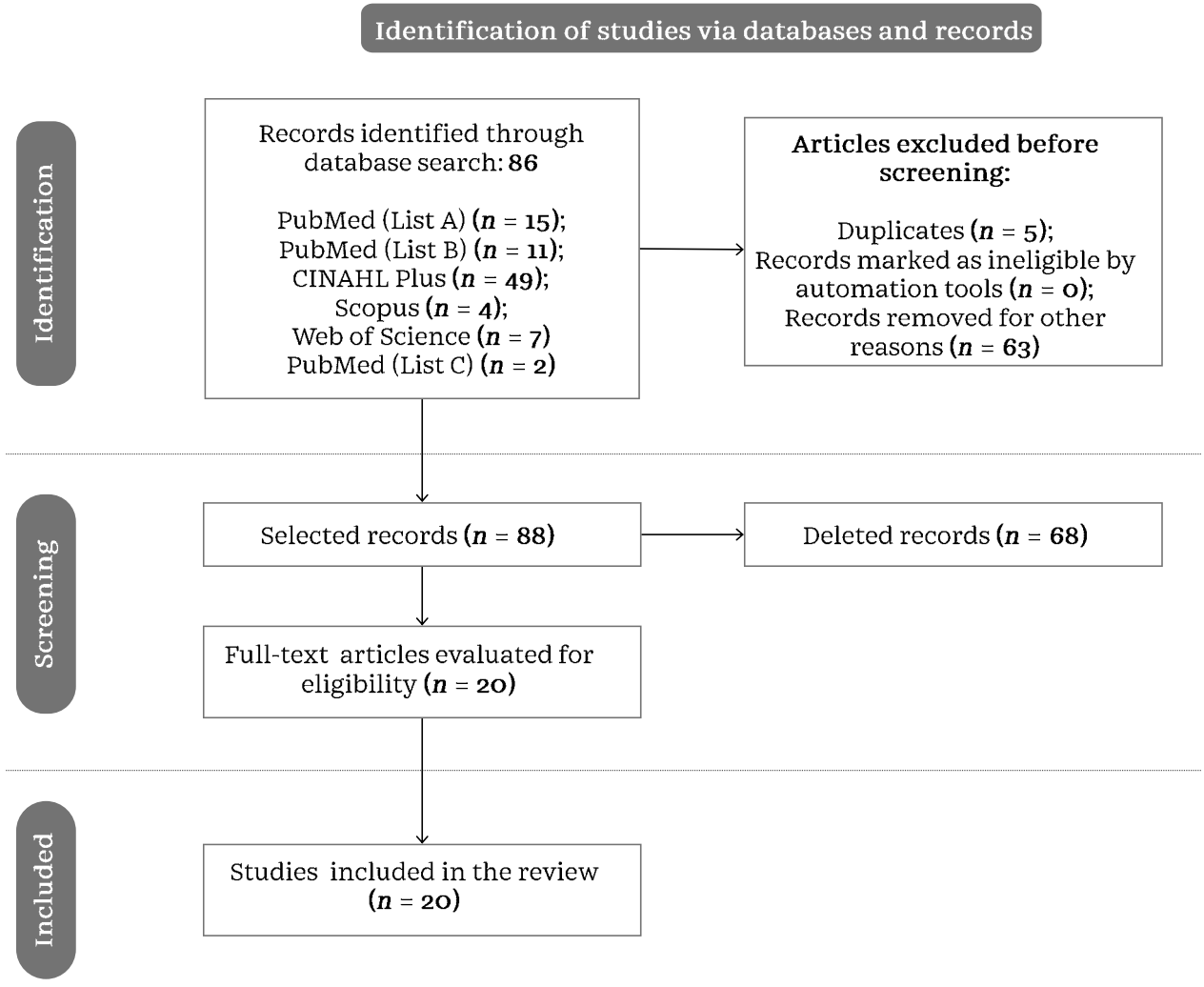

Figure 1. PRISMA of Included studies
Note. Prepared by the authors, adapted from Moher et al. (2010).

Table 1. Quality of the methodological aspects of the primary studies

Studies	Quality Issues									Overall Score	Interpretation of the Quality Result
	1	2	3	4	5	6	7	8	9		
Spence and Nosko (2015)	S	S	S	S	S	S	S	S	S	100,00%	High
Hao et al. (2015)	S	S	S	S	S	S	S	S	S	100,00%	High
Ding et al. (2015)	S	S	S	S	S	S	S	S	S	100,00%	High
Bonner (2016)	S	S	S	S	S	S	S	S	S	100,00%	High
Zhou et al. (2017)	S	S	S	S	S	S	S	S	S	100,00%	High
Wang et al. (2017)	S	S	S	S	S	S	S	S	S	100,00%	High
Zhou et al. (2018b)	S	S	S	S	S	S	S	S	S	100,00%	High
Brunetto et al. (2020)	S	S	S	S	S	S	S	S	S	100,00%	High
Yang et al. (2020)	S	S	S	S	S	S	S	S	S	100,00%	High
Tian et al. (2020)	S	S	S	S	S	S	S	S	S	100,00%	High
Salur and Yıldırım (2021)	S	S	S	S	S	S	S	S	S	100,00%	High
Li and Wu (2021)	S	S	S	S	S	S	S	S	S	100,00%	High
Chang et al. (2023)	S	S	S	S	S	S	S	S	S	100,00%	High
Kim and Yoo (2018)	N	S	N	N	S	S	S	S	S	66,66%	Reasonable
Zhou et al. (2018a)	N	S	N	N	S	S	S	S	S	66,66%	Reasonable
Liu et al. (2021)	I	S	I	I	S	S	S	S	S	66,66%	Reasonable
Secosan et al. (2021)	N	S	N	N	S	S	S	S	S	66,66%	Reasonable
Çağış and Yıldırım (2023)	S	S	S	S	S	I	I	I	I	55,55%	Reasonable
Xu et al. (2022a)	S	S	S	S	S	S	S	S	S	100,00%	High
Xu et al. (2022b)	S	S	S	S	S	S	S	S	S	100,00%	High

Note. Prepared by the authors based on the Critical Assessment of Joanna Briggs Institute (JBI) 2020.

The nine assessment items were used to assess the methodological aspects of each study used, with the following questions: (1) Is the sample structure appropriate to represent the target population?; (2) Were the study participants selected appropriately?; (3) Was the sample size adequate?; (4) Were the study subjects described in detail?; (5) Was data analysis performed on a sufficient portion of the identified sample?; (6) Were valid methods used for condition identification?; (7) Was the studied condition measured in a standard and reliable way for all participants?; (8) Was there an appropriate statistical analysis?; (9) Was the response rate adequate? If the response rate was low, was it managed properly? The questions were answered with the options of "S = Yes", "N = No", "I = Uncertain", or "Not Applicable". We calculated "Yes" response percentages for each study, and the quality of each study was interpreted as a percentage as follows: High = 80% to 100%; reasonable = 50% to 79% and Low = < 50% (Oliveira et al., 2022).

SD = 428,7; Mdn = 667). In a segmented way, the sample of nurses had an average of 643 participants (*M* = 643,25; *SD* = 178,89; Mdn = 478) and the sample of physicians had an average of 407 participants (*M* = 439,33; *SD* = 369,02; Mdn = 536) (Table 2).

Variables with a positive and negative focus in the identified primary studies

According to the analysis performed, we identified five studies (25%) with a positive focus, in a time interval from 2016 to 2020, with more studies in the years 2018 and 2020, and with the most frequently related variable, work engagement, being identified in three articles (from 2016, 2018, and 2020); and fifteen studies (75%), with a negative focus from 2015 to 2023, with more studies in the year 2021. The most frequently related variables were depressive symptoms and emotional exhaustion, each identified in five articles during this period (from 2015 to 2023) (Table 3). Altogether, we see an increase in studies with a positive focus until 2020, in 2021 there was a decline in studies with a positive focus and an increase in studies with a negative focus. In the current year (2023) there are no studies, to our knowledge, with a positive focus, contrasting with two studies with a negative focus.

Table 2. Sample of health professionals in the primary studies

Reference	Local/Country	Sample of Nurses	Sample of Physicians	Total per Study
Spence and Nosko (2015)	Canada	1.205	-	1.205
Hao et al. (2015)	China	824	-	824
Ding et al. (2015)	China	1.496	-	1.496
Bonner (2016)	England	137	-	137
Zhou et al. (2017)	China	538	-	538
Wang et al. (2017)	China	1.016	-	1.016
Kim and Yoo (2018)	Korea	156	-	156
Zhou et al. (2018a)	China	351	-	351
Zhou et al. (2018b)	China	1354	-	1.354
Brunetto et al. (2020)	USA	174	26	251
	Australia	51	-	
Yang et al. (2020)	China	-	836	836
Tian et al. (2020)	China	-	1.104	1.104
Liu et al. (2021)	China	766	-	766
Salur and Yıldırım (2021)	Türkiye	122	83	205
Secosan et al. (2021)	Romania	32	94	126
Li and Wu (2021)	China	418	644	1.062
Xu et al. (2022a)	China	-	568	568
Xu et al. (2022b)	China	-	536	536
Çağış and Yıldırım (2023)	Türkiye	100	63	163
Chang et al. (2023)	China	952	-	952
	Sum	10.292	2.850	13.646
	Mean	643,25	407,1	682,30
	Standard Deviation	178,89	26,16	428,7
	Median	478	94	667

Table 3. Variables with a positive and negative focus in the identified primary studies

Focus	Variables	*n*	%	Years of Publication
Positive	Work engagement	1	20%	2016
	Work engagement and intention to remain in nursing Perceived nursing work environment (PNWE)	2	40%	2018
	Perceived Organisational Support (POS) and work engagement Leader–Member Exchange Relationship and Innovative Behaviour	2	40%	2020
Negative	Coping styles and psychological distress Workplace violence (WPV) and depressive symptoms Occupational stressors (extrinsic effort, reward and over-commitment), Perceived Organisational Support (POS) and work engagement	3	20%	2015

(*Continued*)

Focus	Variables	*n*	%	Years of Publication
	WPV and occupational identity Bullying and PTSD symptomatology	2	13,33%	2017
	Emotional exhaustion and coping style	1	6,66%	2018
	Organisational commitment, emotional exhaustion and anxiety	1	6,66%	2020
	Stress at work, Perceived Social Support (PSS) and emotional exhaustion Depressive symptoms and WPV Anxiety/Depression and Emotional Exhaustion/Mental Health Complaints and Psychological Problems Compassion fatigue and possible predictors (demographics, vocational characteristics, and satisfaction)	4	26,66%	2021
	Depressive symptoms and the social support availability (SSA) Depressive and anxiety symptoms and social support availability (SSA)	2	13,33%	2022
	Fear of COVID-19, emotional exhaustion and job satisfaction Coping styles and psychic suffering	2	13,33%	2023

Role of the nuclear variable (PsyCap) in primary studies

All the articles in our sample presented a cross-sectional design, we also identified that PsyCap assumed eight different roles: (1) Correlation, the most frequent, identified in 30% of the articles; (3) Correlation and mediation, identified in 20% of the articles; (2) Mediation, identified in 20% of the articles; (5) Moderation, identified in 10% of the articles; (4) Predictive role, identified in 5% of the articles; (6) Moderation and mediation, identified in 5% of the articles; (7) Correlation and Predictive Role, identified in 5% of the articles; (8) Correlation and Moderation, identified in 5% of the articles (Table 4).

PsyCap measurement instruments used in the primary studies

Regarding the measurement instrument used in the primary studies, we identified that most of the studies used the Psychological Capital Questionnaire-24 (PCQ-24, Luthans et al., 2007), with the exception of three studies, and those by Brunetto et al. (2020) and Secosan et

Table 4. Role of the nuclear variable (PsyCap) in the identified primary studies

Authors	Role of the nuclear variable	Variables studied with PsyCap
Hao et al. (2015)	Moderation and Mediation	Work-family conflict (WFC), family-work conflict (FWC) and depressive symptoms
Spence and Nosko (2015)	Moderation	Moral harassment, bullying and symptoms of Post-Traumatic Stress Disorder (PTSD)
Secosan et al. (2021)		Anxiety/Depression and Emotional Exhaustion/Mental Health Complaints and Psychological Problems
Salur and Yıldırım (2021)	Predictive role	Compassion fatigue and possible predictors (demographics, vocational characteristics, and satisfaction)
Yang et al. (2020)		POS and work engagement
Tian et al. (2020)		Occupational Stress and Fatigue
Brunetto et al. (2020)		Leader–member exchange (LMX) and innovative behaviour
Xu et al. (2022a)	Correlation and Predictive Role	Depressive symptoms and the social support (SS)
Xu et al. (2022b)	Correlation and Moderation	Depressive and anxiety symptoms and the social support availability (SSA)

(*Continued*)

Authors	Role of the nuclear variable	Variables studied with PsyCap
Ding et al. (2015)	Correlation	Emotional exhaustion and coping style
Bonner (2016)		Work engagement
Zhou et al. (2017)		Coping styles and psychological distress
Kim and Yoo (2018)		work engagement and intention to remain in nursing
Zhou et al. (2018a)		Perceived nursing work environment (PNWE) and professional benefits (positive professional perception/good patient-nurse relationship/recognition from family and friends/ feeling of belonging to the work team/personal growth)
Liu et al. (2021)		Stress at work, Perceived Social Support (PSS) and emotional exhaustion
Zhou et al. (2018b)	Mediation	Organisational commitment, emotional exhaustion and anxiety symptoms
Li and Wu (2021)		Depressive symptoms and workplace violence (WPV)
Çağış and Yıldırım (2023)		Fear of COVID-19, Emotional Exhaustion from COVID-19, and Job Satisfaction
Chang et al. (2023)		WPV and occupational identity

al. (2021) who used the Psychological Capital Questionnaire-12 (PCQ-12; Luthans et al., 2006); and the study of Çağiş and Yıldırım (2023) who used the Compound PsyCap Scale (CPC-12; Lorenz et al., 2016). The instruments showed an internal consistency, measured by means of Cronbach's alpha coefficient, between .66 and .977, mostly presenting an excellent consistency (in the interpretation of Santiago, 2021), with a proportion of 60% (Table 5).

Analysis of data used in the primary studies

In the 20 articles, different data analysis methods were evident in the articles included in the review (Figure 2).

Discussion

This review, which aimed to perform a survey of studies that addressed PsyCap in empirical studies with samples of health professionals, namely physicians and nurses, as well as to observe the possible benefits of PsyCap in those studies, highlighted the importance of this concept in the organisational context, regardless of the role assumed by the core variable, since it presents positive contributions to the performance of health professionals at their workplace. The study of PsyCap was conducted using four different approaches, with seven articles evaluating it in more than one modality. The analysis revealed that 7.40% of the sample investigated PsyCap as a predictive variable, 14.81% approached it as a moderating variable and in 33.33% as a mediating variable, the correlational role had the highest proportion of 44.44%.

PsyCap as a correlational variable

Among the studies that have examined PsyCap in a correlational context, both positive and negative correlations have been identified. PsyCap shows a positive relationship with professionals' intention to stay at their workplace ($r = 0.527$) (Kim & Yoo, 2018) and is significant-

Table 5. Cronbach's Alpha of the primary studies

Reference	Measuring instrument	Cronbach's Alpha Value	Interpretation
Spence and Nosko (2015)	Psychological Capital Questionnaire (PCQ-24)	0.66–0.89	Limited Applicability
Ding et al. (2015)	PCQ-24	0,945	Excellent
Hao et al. (2015)	PCQ-24	0,89	Good
Bonner (2016)	PCQ-24	0,896	Good
Zhou et al. (2017)	PCQ-24	0,942	Excellent
Wang et al. (2017)	PCQ-24	0,93	Excellent
Kim and Yoo (2018)	PCQ-24	0,87	Good

(*Continued*)

Reference	Measuring instrument	Cronbach's Alpha Value	Interpretation
Zhou et al. (2018a)	PCQ-24	0,943	Excellent
Zhou et al. (2018b)	PCQ-24	0,924	Excellent
Yang et al. (2020)	PCQ-24	0,934	Excellent
Tian et al. (2020)	PCQ-24	0,977	Excellent
Brunetto et al. (2020)	PCQ-12	0,88	Good
Liu et al. (2021)	PCQ-24	< 0.8	Adequate
Li and Wu. (2021)	PCQ-24	0,943	Excellent
Secosan et al. (2021)	Psychological Capital Questionnaire-12 (PCQ-12)	0,89	Good
Salur and Yıldırım (2021)	PCQ-24	0,89	Good
Xu et al. (2022a)	PCQ-24	0,933	Excellent
Xu et al. (2022b)	PCQ-24	0,933	Excellent
Çağış and Yıldırım (2023)	Compound PsyCap Scale (CPC-12)	0,9	Excellent
Chang et al. (2023)	PCQ-24	0,941	Excellent

Note. Prepared by the study authors, in the Interpretation of Santiago (2021) where the reference values are: < .70 (Limited applicability); between .70 and .79 (Adequate); between .80 and .89 (Good) and finally, between .90 or > .90 (Excellent).

ly correlated with various professional benefits, such as positive professional perception, good nurse-patient relationships, recognition from family and friends, a sense of team belonging, and personal growth (Zhou et al., 2018a). Also is positively correlated with positive coping strategies (ranging from r = 0.336 to r = 0.388) (Ding et al., 2015), occupational identity (r = 0,545) (Chang et al., 2023), social support (SS) (r = 0.264) (Xu et al., 2022a) and social support availability (SSA) (r = 0.20) (Xu et al., 2022b).

Also, Wang et al. (2017) examined PsyCap and POS alongside occupational stressors (extrinsic effort, reward, and overcommitment) and work engagement within the JD-R Model. They found positive correlations with work engagement, with extrinsic effort negatively influencing work engagement (vigour: r = -0.272; dedication: r = -0.275; absorption: r = -0.232). Extrinsic effort also showed a negative association with optimism (r = -0.479), while optimism had a positive association with rewards (r = 0.208). No significant correlation was found between overcommitment and work engagement. Similarly, Bonner (2016) and Kim and Yoo (2018) identified a positive correlation between overall work engagement (r = 0.633; r = 509, respectively) and its components—vigour (r = 0.535), dedication (r = 0.514), and absorption (r = 0.485)—as reported by Yang et al. (2020). Additionally, they also found a positive correlation between PsyCap and POS (r = 0.424).

The studies also found that PsyCap showed negative correlations, specifically in relation to the fear of COVID-19 (r = -0,24) (Çağış & Yıldırım, 2023), anxiety symptoms (r = –0.415) (Zhou et al., 2018b), psychological distress (with optimism and hope subcategories showing higher levels of negative correlation) (r = -0.323; r = -0.319, respectively) (Zhou et al., 2017), occupational stress: effort-reward imbalance (r = −0,340) and overcommitment (r = −0.236) (Tian et al., 2020), workplace bullying (r = −0.32; r = −0.29) and PTSD (r = −0.39 and r = −0.37) (Spence & Nosko, 2015), emotional exhaustion (from r = -0.100 to r = -0.214), depersonalisation (from r = -0.183 to r = -0.244), reduced personal achievement (from r = -0.222 to r = -0.318) and negative coping (from r = -0.150 to r = -0.220) (Ding et al., 2015).

This resource, PsyCap, was negatively correlated with workplace violence (WPV), with r = -0.346 in doctors and r = -0.362 in nurses (Li & Wu, 2021), and r = -0.378 (Chang et al., 2023). Specifically, in the work-family conflict (WFC) and family-work conflict (FWC), Hao et al.'s (2015) study identified that these conflicts (r = 0.249; r = 0.437, respectively) were positively associated with depressive symptoms and negatively associated with three PsyCap subcategories: hope (r = -0.307; r = -0.081), resilience (r = -0.324; r = -0.173), and optimism (r = -0.326; r = -0.155-). With only FWC showing a negative correlation with the self-efficacy subcategory (r = -0.098).

The fear of COVID-19 also had a positive correlation with COVID-19 emotional exhaustion (r = 0,62) and a negative correlation with job satisfaction (r = -0,23) (Çağış & Yıldırım, 2023). Emotional exhaustion is also positively related to anxiety symptoms (r = 0.388), which were negatively related to organisational commitment (r = –0.193) in Zhou et al.'s (2018b) study. Similarly, Secosan et al. (2021) found a positive and significant correlation between anxiety and emotional exhaustion (r = 0.70), cynicism (r = 0.74), inefficacy (r = 0.68), and mental health complaints (r = 0.75) among healthcare professionals (nurses and doctors). Depressive symptoms were also positively related to WPV (r = 0.346) (Li & Wu,

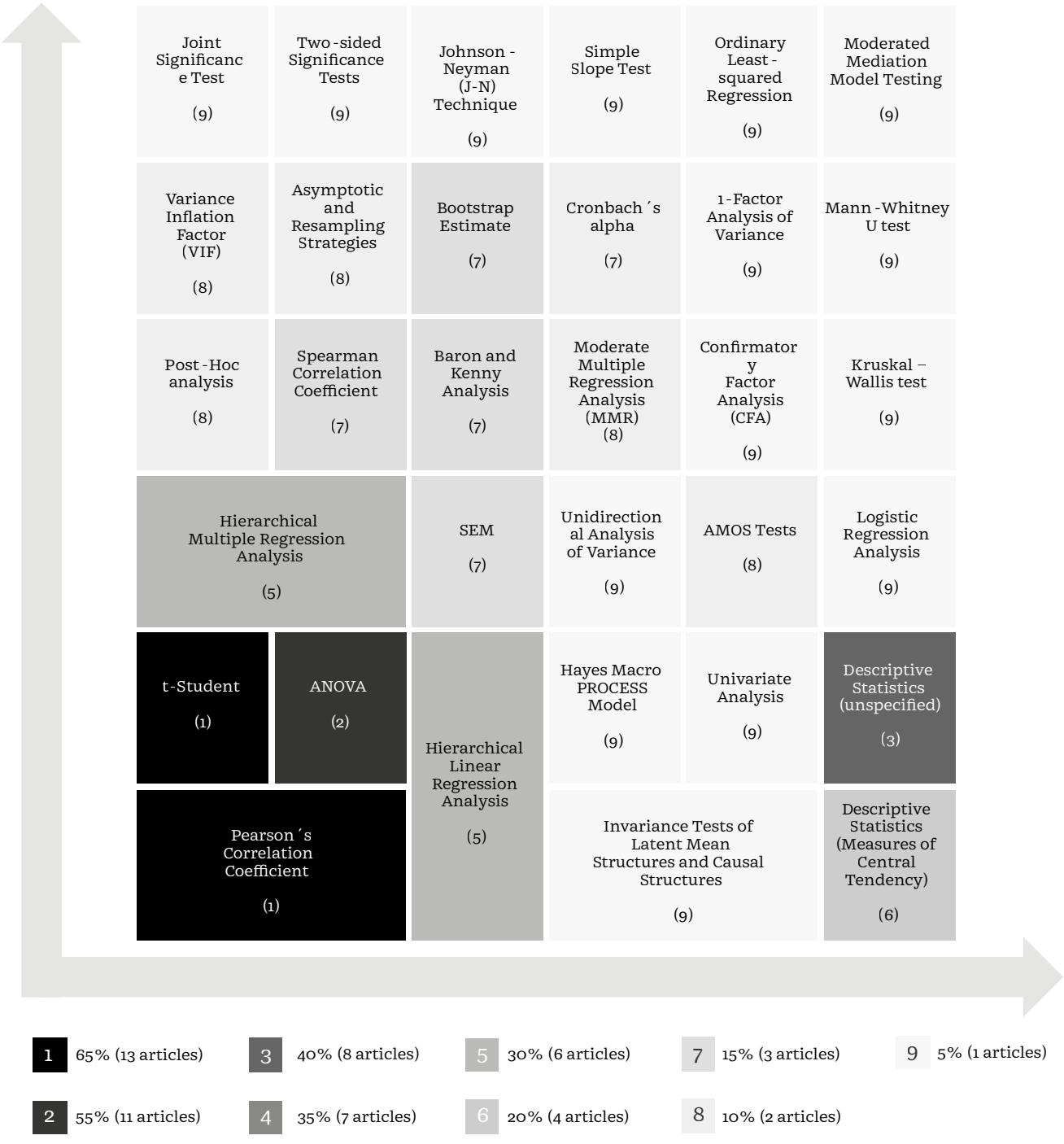

Figure 2. Data analysis used in identified primary studies

2021). Emotional exhaustion and PsyCap were also studied with coping styles, particularly in Ding et al. (2015) and Zhou et al. (2017). In the Zhou et al. (2017) study, they found that psychological distress was positively related to negative coping (r = 0.435) and negatively associated with positive coping (r = -0.343).

Similarly, the study by Xu et al. (2022a) identified a negative relationship between depression and PsyCap (r = –0.384), including its components: hope (r = -0.360), self-efficacy (r = -0.184), resilience (r = -0.387), and optimism (r = -0.344)—all of which were statistically significant. In another study, Xu et al. (2022b) found that both depression and anxiety are negatively associated with PsyCap, with correlation coefficients of -0.43 for depression, and -0.39 for anxiety, respectively.

PsyCap was also studied with occupational fatigue and occupational stress by Tian et al. (2020). This study found a fatigue prevalence of 83.70% among doctors,

with significant correlations between fatigue and both age (r = 0.067) and occupational stress factors, specifically effort-reward imbalance (r = 0.416) and overcommitment (r = 0.201). These results suggest that fatigue levels increase as the imbalance between effort and reward worsens. Age was also studied in Spence and Nosko's (2015) study, which found that it was weakly but significantly related to overall PsyCap (r = 0.23), with older nurses tending to have higher levels of PsyCap.

In general, we have identified what is commonly found in the literature. PsyCap shows positive relationships with job performance, such as work engagement (Avey et al., 2011; Cid et al., 2021; Newman et al., 2014), and negative relationships with undesirable phenomena, such as work stress (Avey et al., 2009; Avey et al., 2011; Cid et al., 2021).

PsyCap as a predictor

PsyCap has been highlighted as a precursor to workplace engagement, which can be explained by the JD-R Model, in which a high level of PsyCap is considered a work-related resource that positively impacts job demands in the motivational process that leads to high work engagement (Bonner, 2016). As indicated in the model's second premise, where the dual process of health commitment (high demands) and motivational commitment (high resources) occurs, this process is essential for motivation/engagement development, as it corresponds to basic psychological needs and strain/emotional exhaustion, as demands generate costs and consume energy resources (Bakker & Demerouti, 2014; Sobral, 2013).

As identified in the study by Secosan et al. (2021), it is significant that PsyCap negatively predicts emotional exhaustion (β = –0.20), cynicism (β = –0.19), inefficacy (β = –0.27), and mental health complaints (β = –0.30). Its interaction with anxiety was significant for emotional exhaustion (β = –0.12) and mental health complaints (β = –0.19). Similarly, in interactions with depression, PsyCap negatively predicted emotional exhaustion (β = –0.15), inefficacy (β = –0.19), and mental health complaints (β = –0.18), demonstrating a buffering effect on these outcomes.

Xu et al. (2022a) focused on the predictive role of PsyCap components (hope, self-efficacy, resilience, and optimism) on depression and social support (SS). The analysis showed that depression was negatively predicted by hope (c = –0.205), resilience (c = –0.209), and optimism (c = –0.141), while self-efficacy positively predicted depression (c = 0.123). Additionally, optimism was the only PsyCap component that positively predicted SS (a = 0.266).

Furthermore, PsyCap, especially the resilience subcategory, has been found to be effective in preventing compassion fatigue in healthcare professionals, as shown in Salur and Yıldırım's (2021) study, which found a significant difference in the level of compassion fatigue between doctors (M = 20.15; SD = 8.58) and nurses (M = 17.16; SD = 9.49). As emphasised by Li and Wu (2021), the dimensions of PsyCap should be incorporated into strategies to prevent occupational stress.

PsyCap as a mediator

We have found in the results that PsyCap plays a crucial role in the workplace context. Innovation is identified in the literature as an important aspect emphasised by healthcare organisations, as it is seen as a driver of social progress that should always be in continuous change. PsyCap and Leader-Member Exchange (LMX) play significant roles in fostering innovative behaviour, with PsyCap notably serving as a mediator in the relationship between LMX and innovative behaviour in both the North American (U.S.) (β = .340) and Australian (β = .157) samples. In other words, the impact of management on PsyCap triggers an impact on innovative behaviour, meaning that inadequate organisational support leads to low PsyCap and inadequate innovative behaviour (Brunetto et al., 2020). This innovative behaviour varies from country to country; Brunetto et al. (2020) identified that workers in the U.S. engage in more innovative behaviours compared to Australian workers. They emphasise that organisational and individual support has a significantly greater impact on innovative behaviour, highlighting the importance of organisational support as it needs to adapt to new ideas and societal challenges.

In Wang et al. (2017), optimism within PsyCap significantly mediated the relationship between POS and both vigour (β = 0.118) and dedication (β = 0.124). Additionally, PsyCap, particularly hope, mediated the relationships between POS and work engagement components, such as vigour (β = 0.231) and dedication (β = 0.245). The study also demonstrated that PsyCap and its components could mediate the effects of occupational stressors and POS on work engagement, thereby reducing the impact of extrinsic effort, reward, and overcommitment on these outcomes. Similarly, the Liu et al. (2021) study identified that PsyCap and Perceived Social Support (PSS) mediate the effect of work stress and emotional exhaustion (β = 0.27). This result is supported in the literature by Sun et al. (2022). The three main stressors identified in the Liu et al. (2021) study were workload, job characteristics, and expectations, followed by family and work conflicts, interpersonal relationships, and nurse-patient interactions. These stressors significantly reduced PsyCap levels, subsequently increasing emotional exhaustion. In the context of work-related conflicts, Hao et al. (2015) found that the inclusion of hope, resilience, optimism, or overall PsyCap reduced the effect of WFC on depressive symptoms (from β = 0.243 to β = 0.223 and β = 0.216, respectively). This indicates that these PsyCap dimensions, as well as overall PsyCap, partially mediate the relationship between WFC and depressive symptoms.

PsyCap also mediated the relationship between occupational stress and fatigue (β = 0.106; β = 0.068) in the Tian et al. (2020) study, which highlighted the importance of considering the level of fatigue among older and less-educated doctors. It partially mediated the relationship between WPV and occupational identity (c = –0.353) (Chang et al., 2023). It also acts as a mediator in the relationship between perceived nursing work environment (PNWE) and professional benefits (β = 0.55) (Zhou et al., 2018a). As indicated by Cid et al. (2021), Li and Wu (2021), Salur and Yıldırım (2021), and Secosan et

al. (2021), the importance of PsyCap in the workplace is highlighted, as this resource helps professionals perceive their environment more positively and safely. This aids them in coping with the challenges of their profession and workplace, ultimately increasing their well-being, job satisfaction, and reducing stress, anxiety, and emotional exhaustion.

From the perspective of positive psychology, Zhou et al. (2018b) found that PsyCap had both direct and indirect effects on anxiety in nurses, mediated by organisational commitment and emotional exhaustion. PsyCap had a direct negative effect on anxiety (β = -0.192) and on emotional exhaustion (β = -0.017), while it had a positive effect on organisational commitment (β = 0.262). Organisational commitment, in turn, negatively impacted emotional exhaustion (β = -0.005) and anxiety (β = -0.103), while emotional exhaustion had a direct positive effect on anxiety (β = 3.618). These results suggest that higher levels of PsyCap lead to lower emotional exhaustion and reduced anxiety among nurses. This result was also identified in Li and Wu's (2021) study, which found that PsyCap can mediate the effect of WPV on depressive symptoms (β = 0.317).

Emotional exhaustion also had a coping style as a mediator in its relationship with PsyCap in the Ding et al. (2015) study and in the relationship between PsyCap and depersonalisation. Additionally, Zhou et al. (2017) found that PsyCap has both direct and indirect effects on psychological distress, with coping styles partially mediating this relationship. Specifically, PsyCap negatively impacted psychological distress (β = -0.33) directly, and the mediation occurred through both positive coping (β = -0.13) and negative coping (β = 0.35), indicating that higher PsyCap is associated with lower psychological distress, partly due to its influence on coping strategies. This reinforces what the literature has stated, that PsyCap plays a protective and significant role against the impact on distress (Hao et al., 2020; Jin et al., 2020; Liang et al., 2018) and acts as a mediator in the relationship between psychological distress and perceived stress (Sun et al., 2022). This is an important aspect considering the high rates of mental health issues among healthcare professionals identified in the Almeida et al. (2020) study.

PsyCap as a moderator

PsyCap also plays the role of a moderator. Hao et al.'s (2015) study identified PsyCap as a positive moderator in the association between WFC and depressive symptoms (β = 0.062, $p < 0.05$). However, they found that the PsyCap subcategories, resilience and optimism, do not moderate the relationship between WFC and depressive symptoms, and the same is true for the relationship between FWC and depressive symptoms. The study by Xu et al. (2022b) also explored PsyCap as a moderator in the relationship between anxiety and depression, where no significant moderation was observed. However, significant moderation of PsyCap was found in the relationship between SSA and depression (β = 0.06), being stronger at low levels of PsyCap. Additionally, components of PsyCap such as self-efficacy (β = 0.07), hope (β = 0.06), and resilience (β = 0.05) proved to be effective moderators, while optimism had no significant moderating effect (β = 0.03). These results align with findings in the literature by Al-Omari et al. (2019) and Qiu et al. (2019).

Similarly, Spence and Nosko (2015) found that PsyCap does not attenuate the effect of workplace bullying on PTSD symptoms ($R2$ = 0.36 and $R2$ = 0.40, for new graduates and experienced nurses, respectively) and does not significantly moderate the relationship between bullying and PTSD. Regarding emotional exhaustion, Liu et al.'s (2021) study found that PsyCap negatively moderates emotional exhaustion (β = -0.43). In other words, individuals with higher levels of PsyCap are less likely to experience high levels of emotional exhaustion.

In the literature, PsyCap is identified as a moderator in the relationship between Leader-Member Exchange (LMX) and emotional contagion (EC), which reflects professional well-being, as also found by Jin et al. (2020). This resource also acts as a protective/moderating factor against empathy decline, and its promotion is considered a prevention strategy for empathy decline and empathy enhancement (Jin et al., 2020). However, this role was one of the less frequently identified in our sample (13.04%), indicating the need for more studies examining the moderating role of PsyCap.

Theoretical implications

Fotiadis et al. (2019) reinforce the urgency of meeting psychological needs to promote a healthy and productive work environment and reduce work-related stress in these professionals to enhance the quality of nursing. As identified in this review, PsyCap (a psychological resource) presents itself as a valuable resource to be integrated into organisations due to the various organisational outcomes identified in the studies (Bonner, 2016; Brunetto et al., 2020; Çağış & Yıldırım, 2023; Chang et al., 2023; Ding et al., 2015; Hao et al., 2015; Kim & Yoo, 2018; Li & Wu, 2021; Salur & Yıldırım, 2021; Secosan et al., 2021; Spence & Nosko, 2015; Tian et al., 2020; Wang et al., 2017; Yang et al., 2020; Zhou et al., 2017; Zhou et al., 2018a; Zhou et al., 2018b). In which they cite as limitations the use of cross-sectional study designs, hindering the inference of causality, and the use of self-report instruments, which can be influenced by biases, such as social desirability. They also mention limitation samples often limited to professionals from large hospitals or specific demographic groups.

The studies refer to several suggestions, such as: (1) the use of the PCQ-24 and UWES-17, considering the JD-R Theory, and the inclusion of PsyCap in the strategies of engagement (Bonner, 2016); (2) the inclusion of contextual variables, such as working time in the workplace and factors associated with work engagement (Kim & Yoo, 2018; Wang et al., 2017); (3) the development of experimental studies with PsyCap (Salur & Yıldırım, 2021); (4) involve professionals in the creation of training programmes and the promotion of positive coping (Zhou et al., 2017); (5) expand samples and implement the PsyCap (PCI) intervention model (Çağış & Yıldırım, 2023; Chang et al., 2023); (6) investigate the role of PsyCap during significant events, such as the COVID-19 pandemic (Secosan et al., 2021); (7) promote safer work environments to decrease emotional exhaustion and

anxiety (Yang et al., 2020); (8) valuing labour relations and studying the impact of PsyCap on innovative behaviour (Brunetto et al., 2020). Finally, it is recommended that hospital managers focus on the development of PsyCap in their workers, since a worker with high PsyCap levels is considered a valuable asset (Liu et al., 2021; Spence & Nosko, 2015; Tian et al., 2020; Zhou et al., 2018a). The literature has been prolific in demonstrating that PsyCap is fundamental to promoting desirable work attitudes and behaviours and job performance. Furthermore, this concept also mitigates the negative effect of undesirable work attitudes and behaviours. In other words, a worker with a high PsyCap can become a competitive advantage for your organisation, allowing you to achieve organisational objectives.

Xu et al. (2022b) underscore the importance of PsyCap by highlighting a crucial finding from their study: the moderating effect of PsyCap is stronger in individuals with low levels thereof. In other words, for those with low levels of PsyCap, social support plays an especially significant role, impacting the reduction of depression more intensely. Thus, promoting PsyCap adopts a preventive strategy that strengthens mental health over the long term. This not only improves an individual's ability to handle challenges but also reduces dependence on external factors, such as social support, fostering more autonomous and sustainable resilience.

The need for further research regarding the role of PsyCap in the mental health of frontline healthcare professionals, especially physicians and nurses, has been confirmed by the present systematic literature review. In 2023, we found a lack of studies with a positive approach to PsyCap in physicians and nurses, highlighting the need to investigate more regarding its relationship with work engagement, through the JD-R Theory. This review recognises the importance of PsyCap in the organisational context, encouraging health organisations to promote this concept. Interventions based on PsyCap, such as PsyCap Intervention (PCI) have shown efficacy. Based on these results, organisations are more motivated to adopt practices that increase PsyCap, as high levels of this resource help professionals to deal with the challenges that affect health systems and their sustainability. This aligns with the JD-R theory, which underlines the relevance of personal resources, such as PsyCap, in managing occupational well-being.

Limitations

This study has several limitations, including a potentially restrictive selection criteria, limited access to some articles, and the omission of additional databases, languages, and search terms, which may have limited the scope of primary studies reviewed. Additionally, no attempt was made to assess publication bias, and the large and varied analyses, along with the numerous variables in the studies, complicate consistent conclusions.

Practical implications

This systematic review suggests that promoting PsyCap in the workplace is an effective strategy for enhancing self-efficacy, hope, optimism, and resilience among healthcare professionals—key qualities for facing daily challenges. Additionally, PsyCap plays a crucial role in generating professional benefits, such as organisational support, which are essential for emotional well-being and job performance. Creating a healthy and supportive work environment, guided by the principles of positive psychology, is vital not only for improving clinical practice but also for strengthening the perception of social support among professionals. Promoting PsyCap can help better manage work pressure and occupational burnout, reducing stressors, emotional exhaustion, and their negative effects, while also increasing engagement, perceived organisational support, and innovative behaviour—all of which are fundamental to organisational success.

Declaration of conflicting interests

The authors declare no potential conflicts of interest regarding the research, authorship and/or publication of this article.

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